

8. BENEFITS AND COSTS OF THE PROPOSED ACTION

In addition to costs and benefits of the environmental impacts described in Chapters 4 through 6, this chapter summarizes other societal costs and benefits associated with the proposed action and its alternatives. Section 8.1 examines the economic costs and benefits of the proposed action, while Section 8.2 summarizes its environmental costs and benefits. Section 8.3 qualitatively summarizes other societal benefits of the proposed action.

8.1 Economic Benefits and Costs of Constructing and Operating the Proposed Facility

This section considers the economic benefits and costs of the applicant's (i.e. PFS's) proposal.¹ Benefits and costs are considered herein from a societal perspective, as opposed to the perspective of any particular individual or company.² The assessment in this DEIS considers quantifiable benefits and costs.

PFS has estimated benefits and costs for several scenarios. The approach and assumptions used to develop these scenarios are reviewed below. The NRC staff agrees with PFS's approach, which considers the proposed project's benefits from a societal perspective. "Benefits" are estimated as the costs to society that can be avoided by use of the proposed PFSF. These "avoided costs" are estimated by taking the difference of the costs of continuing to store SNF at reactor sites (until it can be sent to a permanent repository) from the costs of removing SNF from reactor sites at an earlier date made possible by the availability of the proposed PFSF.

Scenarios are differentiated by (1) the grouping of reactor sites that could potentially use SNF storage at the proposed PFSF, and (2) the date when the permanent repository is projected to become available. Scenarios evaluated by the NRC staff are based on alternative quantities of SNF that could be accepted at the proposed PFSF. PFS developed several cases: (1) one case assuming the proposed PFSF accepted SNF only from PFS member utilities (PFS assumed a facility capacity of 6,600 or 8,000 MTU with an SNF throughput of 12,565 MTU); (2) a second case, based on expected facility use (PFS assumed an SNF throughput of 29,019 MTU); and (3) a third case in which the maximum licensed storage capacity of 40,000 MTU (PFS assumed an SNF throughput of 38,000 MTU) is used. For the second and third cases, projected PFSF capacities were based on PFS's estimates of reactors that would need additional at-reactor storage space and the age of the reactor sites. The staff has labeled these three scenarios as the "small throughput," "medium throughput," and "maximum throughput" scenarios, respectively. In using this terminology and in the following analysis, the staff makes no judgment about the comparative likelihood of these scenarios. The throughputs are based on the storage requirements of the identified groups of reactor sites.

¹The STB has not taken part in the preparation of the benefits and cost analysis presented in this chapter. The benefits and cost analysis presented in this chapter has been prepared to comply with NRC's environmental review requirements.

²The NRC staff has conducted a separate evaluation of the safety aspects of the PFS application. The staff's evaluation on "Financial Qualifications and Decommissioning Funding Assurance" is contained in the NRC's SER (see NRC/SER 2000). As set forth in the SER, the staff has concluded that PFS has provided reasonable assurance of its financial qualifications to construct, operate, and decommission the proposed PFSF.

As a result of the NRC's evaluation on "Financial Qualifications and Decommissioning Funding Assistance," a license condition has been proposed that would require PFS to have service agreements providing for long-term storage of SNF in excess of the 8,000 MTU capacity scenario (which bound the small throughput scenarios). Therefore, only the second and third cases (i.e., the medium and maximum throughput scenarios) were included in the staff's evaluation in this DEIS.

The medium and maximum throughput scenarios have each been evaluated based on when the permanent geologic repository begins accepting SNF—either 2010 or 2015. DOE considers the 2010 date to be the target date and the earliest availability of the permanent repository, while PFS's evaluation is based on the repository becoming available in 2015. The approach and assumptions used to calculate benefits and costs for the four scenarios is discussed below.

8.1.1 PFS's Model and Assumptions

The detailed chain of logic for PFS's assumptions and calculations is described in *Utility At-Reactor Spent Fuel Storage Costs For The Private Fuel Storage Facility Cost-Benefit Analysis Revision 2*, ERI-2025-0001, April 2000. This report was generated by PFS's contractor, Energy Resources International (ERI), in response to the staff's request for additional information. A summary of that report is provided below.

8.1.1.1 Projection of Spent Fuel Generation and Additional Storage Requirements

SNF generation and additional reactor site storage requirements were projected by ERI on a reactor-by-reactor basis. Historical SNF discharges through December 1994 were taken from the DOE database RW-859. From this date, projections for SNF generation and storage requirements were calculated through the end of the 40-year operating license for all currently operating reactors. The projections were made by an ERI computer model, SPNTFUEL. Assumptions used in these projections included average capacity factors of approximately 80 percent, with average discharge burn-up gradually increasing to 55,000 Megawatt-days (MWD)/MTU for PWRs and 45,000 MWD/MTU for BWRs. This results in a projection that the system-wide SNF generation would be approximately 86,000 MTU. The SNF projections provide a year-by-year and reactor-by-reactor accounting of SNF generation.

Requirements for additional SNF storage for a particular reactor are calculated based on when a full core of fuel can no longer be discharged into the SNF storage pool. This is referred to as "loss of full core discharge capability." Each power reactor's maximum SNF storage capacity and/or licensed storage capacity can be attained through various sources such as *Spent Fuel Storage Requirements 1994–2042*, U.S. Department of Energy, (DOE/RW-0431-Rev.1), June 1995. In effect, the projected SNF generation that occurs after loss of full core discharge capability determines the year-by-year additional storage requirements for each reactor site.

8.1.1.2 Spent Fuel Acceptance Assumptions

Additional storage requirements at a reactor site may or may not occur depending on the availability of SNF storage capacity. Another factor that affects these requirements is when SNF can be shipped to the permanent repository. This repository could begin accepting SNF from utilities in 2010, at the earliest. The need for additional at-reactor storage is affected by how soon a reactor licensee can ship SNF to a permanent repository. However, even after the permanent repository is complete and

begins to accept SNF, it will be able to take only a limited amount of fuel in any given year. PFS assumed that DOE would accept the oldest fuel first (OFF) at the permanent repository. This assumption is used for all shipments bound for the repository. For spent fuel that could be shipped to the PFSF, PFS has assumed that fuel shipments will be scheduled in a manner that will (1) limit the amount of additional dry storage that must be added at reactor sites, and (2) reduce the time SNF remains at a reactor site following reactor shutdown for decommissioning. In order to model an SNF shipping schedule that would meet the needs of individual reactor licensees, an “optimized” spent fuel shipping schedule was developed for each of the PFSF scenarios. Priority for shipments was provided to licensees whose reactors would require additional SNF storage capacity and to licensees of shutdown reactors to ensure that SNF having cooled for a period no less than 10 years is removed from such sites on an expedited basis.

Combining the anticipated SNF generation with assumptions about the timing of when the permanent repository begins to accept SNF and the fuel acceptance priorities described above, the at-reactor inventory of SNF for each reactor for each year can be compared with the at-reactor storage capacity. In this way, the ERI spreadsheet model determines additional storage requirements for each reactor in a given scenario.

8.1.1.3 Estimating Costs

The ERI spreadsheet model calculates the annual costs for a chosen group of reactors by applying cost assumptions to increments of additional storage requirements (as described above) for each reactor for each year until all SNF has been shipped off the reactor sites. For each scenario, the cost of a “no action” case (i.e., the case in which the proposed PFSF is not constructed) is calculated in order to establish the baseline cost for the group of reactors without the availability of the proposed PFSF. This cost is then compared to the total costs of the same group of reactors assuming that the proposed PFSF would be available. The case with the proposed PFSF will always cost less than the no action case (excluding PFSF costs) because at-reactor costs would be reduced by shipping fuel away from the reactor sites earlier than projected for the no action alternative.

The availability of the proposed PFSF would allow reactor licensees to avoid costs in two ways. First, by having an off-site storage option available before the permanent repository is opened, costs could be avoided because the requirement for on-site storage would be reduced or eliminated. Second, after a reactor reaches the end of its operating life, all SNF could be shipped off-site earlier than if only the permanent repository were available to receive this SNF. Because SNF could be shipped from the reactors earlier if the proposed PFSF is constructed, the at-reactor storage requirements would be reduced when the proposed PFSF is available, and costs associated with building and operating additional at-reactor storage would therefore be avoided. Also, because all SNF could be shipped off-site earlier, the post-shutdown cost of continuing to operate the SNF pool could be reduced. Thus, the difference in annual costs generated by the no action case and the proposed PFSF case gives the avoided at-reactor costs (i.e., the benefits) of having the proposed PFSF available.

The final calculation for determining the net benefits or net costs of the proposed PFSF is to subtract the cost of the appropriate size and operation of the proposed PFSF from the avoided costs (benefits) that have been described above. This calculation results in the net benefits or net costs of the scenarios that have been calculated.

8.1.1.4 Discounting

All the costs (and benefits) for alternative scenarios are determined on an annual basis in constant 1999 dollars. These values are then “discounted” to a present value so that they are comparable at a single point in time. Discounting reduces future values in order to reflect the time value of money. In other words, discounting recognizes that funds could potentially be used for other activities that could result in an increase in wealth. This means that benefits and costs have more value if they are experienced sooner. The higher the discount rate, the lower the corresponding present value of future cash flows.³ The discount rate is an extremely important variable in this analysis because the proposed PFSF represents a near-term investment that reduces future costs.

When a discount rate is applied to values that are measured in constant year dollars, it is appropriate to use what is termed a “real” discount rate. A real discount rate is usually approximated by a return on capital minus the prevailing rate of inflation. Therefore a real discount rate should be fairly stable over time because it would not rise and fall with inflation trends.

PFS was requested to calculate the present values using a 7 percent real rate of discount. This rate is mandated by OMB Circular A-94 (Darman 1992) for public investment and regulatory analyses. The OMB rate is intended to approximate the marginal pre-tax rate of return on an average investment in the private sector in recent years.

PFS proposed a discount rate of 3.8 percent based on a nominal rate for municipal bonds of 6-5/8 percent reported in the *Wall Street Journal* in October 1999 and an annual inflation rate of 2-3/4 percent (PFS/RAI2 1999). Thus the applicant’s analysis assumes that all capital for PFS would be funded at interest rates represented by the rates available from municipal bonds. Later in this chapter, both of these rates (i.e., 7 percent and 3.8 percent) are used to calculate the present value of costs and benefits for the four scenarios.

8.1.1.5 PFS’s Cost Assumptions

Table 8.1 presents PFS’s cost assumptions for at-reactor storage. Dry storage involves the capital cost to construct an at-reactor ISFSI, as well as the incremental costs to process the SNF from pool to dry storage. It is assumed that licensees of each site at which dry storage is implemented would incur an up-front dry storage system capital cost. For those reactor sites that cannot accommodate large rail transportation casks, SNF is assumed to be transferred from the fuel pool to a smaller cask and then transferred using a dry cask transfer system from the smaller cask to the large rail transportation cask. In this case, an additional capital cost would be incurred for the dry transfer system.

The incremental costs shown in Table 8.1 represent the cost of canisters, storage overpacks, consumables, incremental storage pad costs, loading and unloading, and decommissioning of the storage facility. As provided in Table 8.1, storage-only system costs are applied to utility sites at which licensees have moved SNF to dry storage on-site prior to 2001. For dry storage after 2000, it is assumed that licensees would use dual-purpose canisters (i.e., a canister used for both transportation and storage).

³For example: to an individual, \$100 to be received in ten years is worth less than \$100 now because it would take an investment of only \$61.40 at a 5 percent annual interest rate to result in \$100 in 10 years.

Table 8.1. PFS's at-reactor storage cost assumptions (1999 dollars)

Cost component	1994–2000 storage only systems	2001+ dual-purpose canister systems
Costs of dry storage capacity ^a		
Upfront dry storage ^b :	\$9,184,000	\$9,184,000
Dry transfer capital ^c	\$8,084,620	\$8,084,620
Incremental ^d 125T BWR/PWR (\$/MTU)	\$77,661	\$93,737
Incremental ^d 75T BWR/PWR (\$/MTU)	\$143,516	\$152,596
Incremental Truck ^d BWR/PWR (\$/MTU)	\$117,576	\$115,780
Annual operating ^e	\$600,000	\$600,000
Annual operating cost for post-shutdown pool operation (\$/year per site) ^f	\$8,000,000	\$8,000,000

^aA common cost for both PWR and BWR reactor types was used by PFS and was based on PFS's analysis of current market costs for SNF canister.

^bUp-front costs include construction, licensing, equipment, design and engineering, and startup testing.

^cDry transfer system costs are only included for sites unable to handle large SNF storage and transport systems.

^dIncremental costs include overpacks, canisters, loading and unloading costs, consumables, dry storage facility decommissioning costs.

^eAnnual operating costs for dry storage at operating reactors include personnel costs to administer and manage utility dry storage project, incidentals such as electricity, lighting and security, and NRC annual license fees.

^fAnnual operating costs for post shutdown operation of SNF storage pools includes costs for security, maintenance and engineering, insurance, license fees, taxes, etc.

In addition to the facility capital and processing costs, PFS assumes that an annual operating and maintenance cost of \$600,000 would be incurred for support of the dry storage facility while the plant is operating. After shutdown, it is assumed that each reactor licensee would carry all overhead support costs (e.g., security, engineering, administration) and would therefore incur an annual operating and maintenance cost of \$8 million until all fuel is removed from the site. PFS also included the loading and transportation costs for SNF that is assumed to be shipped to either the proposed PFSF or a permanent repository.

The projected cost for using the proposed PFSF has been estimated by PFS for each of the scenarios in Table 8.2. The costs include the cost of picking up the SNF at the reactor site, supplying the packaging for transporting it, and the costs for transporting the SNF to the Skull Valley storage site. These costs include the canisters and overpacks as well as the capital, operating and decommissioning costs for constructing and operating the proposed PFSF and the proposed rail line. The cost assumptions are included in PFS's business plan (which is proprietary). The staff has reviewed some of the key cost assumptions in the business plan and noted that the assumed costs for canisters and overpacks utilized by the proposed PFSF are 30 percent lower than what was assumed for the canisters and overpacks used for at-reactor storage. PFS justifies this difference on the basis that it expects to obtain lower costs due to the large number of containers to be purchased for the proposed PFSF operations.

8.1.2 Results

Table 8.2 provides the PFS cost estimates using a 3.8 percent and 7 percent discount rate for the four scenarios discussed in Section 8.1. For throughput scenarios less than 40,000 MTU, it should be noted (see Table 8.2) that the proposed PFSF can accept more SNF than the maximum amount

Table 8.2. Costs and benefits for alternative scenarios presented by PFS
(present value in millions of 1999 dollars)

	Discount rate 3.8 percent	Discount rate 7 percent
Scenario I—medium throughput (20,000 MTU capacity; throughput = 29,019 MTU; 2015 repository)		
Storage costs without PFSF	\$4,760	\$3,232
Storage costs with PFSF	\$2,595	\$2,032
Avoided costs or benefits attributed to PFSF	\$2,165	\$1,200
Cost of PFSF facility	\$1,180	\$871
Net benefit of PFSF	\$985	\$329
Scenario II—medium throughput (16,000 MTU capacity; throughput = 29,021 MTU; 2010 repository)		
Storage costs without PFSF	\$4,241	\$3,013
Storage costs with PFSF	\$2,574	\$2,023
Avoided costs or benefits attributed to PFSF	\$1,667	\$990
Cost of PFSF facility	\$1,189	\$881
Net benefit of PFSF	\$478	\$109
Scenario III—maximum throughput (38,000 MTU capacity; throughput = 38,000 MTU; 2015 repository)		
Storage costs without PFSF	\$8,066	\$5,089
Storage costs with PFSF	\$4,712	\$3,212
Avoided costs or benefits attributed to PFSF	\$3,354	\$1,877
Cost of PFSF facility	\$1,534	\$1,109
Net benefit of PFSF	\$1,820	\$768
Scenario IV—maximum throughput (38,000 MTU capacity; throughput = 38,000 MTU; 2010 repository)		
Storage costs without PFSF	\$7,034	\$4,675
Storage costs with PFSF	\$4,339	\$3,079
Avoided costs or benefits attributed to PFSF	\$2,695	\$1,596
Cost of PFSF facility	\$1,534	\$1,109
Net benefit of PFSF	\$1,161	\$487

Source: Spreadsheets provided by PFS.

of SNF stored at the proposed PFSF at any one time because SNF can be accepted from utilities at the same time that SNF is being sent from the proposed PFSF to the permanent repository. For instance, Scenario I in Table 8.2 indicates that the proposed PFSF with a maximum storage of 20,000 MTU has a SNF throughput of 29,019 MTU.

Table 8.2 shows that the net economic benefits of the proposed PFSF are very sensitive to the discount rate, the size of the proposed PFSF, and whether the permanent repository opens in 2010 or 2015. The next section examines these alternative assumptions and does sensitivity analysis for other key assumptions.

8.1.2.1 Discussion of Key Assumptions and Sensitivity Analysis

Table 8.3 provides the results of a sensitivity analysis. The sensitivity analysis uses the 7 percent discount rate and varies several assumptions to determine how the net economic benefit might be affected.

8.1.2.2 The Effects of the National Repository's Opening Date

DOE projects that the permanent repository will open in 2010. However, PFS indicates that it is uncertain whether this date will be met. PFS's assumption in the Environmental Report (PFS/ER 2000) is that the permanent repository would open in 2015. To ensure a complete analysis, the NRC staff requested PFS to prepare analyses for both 2010 and 2015 dates. The staff believes these dates provide a reasonable "window" for the purposes of analysis, due to the sensitivity of the results to the repository opening date.

The effect of when the repository opens can be seen in Table 8.3 by comparing the cases with the same throughput (in MTU) of SNF for the 2010 versus 2015 repository opening dates. For all scenarios, the 2015 repository opening date significantly improves the net economic benefits.

8.1.2.3 The Effects of Discounting

The discount rate is an important variable because many of the costs and benefits would occur far into the future. Even relatively small differences in the discount rate have a significant effect on the results. For instance, a 3.8 percent real discount rate as proposed by PFS would reduce the savings for not operating a SNF storage pool from a nominal \$8 million to \$4.6 million at 15 years, while a 7 percent real discount rate would reduce savings to \$2.9 million. In general, a lower discount rate favors the economics of proposed PFSF compared to a higher discount rate. This is evident in comparing the results of a 3.8 percent discount rate with the results for a 7 percent rate in Table 8.2. The staff has used a 7 percent real discount rate as the default rate in the sensitivity analysis because this rate is mandated by OMB Circular A-94 for public investment and regulatory analyses.

8.1.2.4 Annual Post-Shutdown Pool Storage Costs

The annual post-shutdown pool storage costs have been assumed by PFS to be \$8 million. These costs are for storing SNF in pools until it can be shipped from the reactor site. PFS has assumed that this cost continues for at least 10 years after reactor shutdown, which is the minimum time PFS assumes the fuel will be stored before it is transported. This cost would continue beyond 10 years for the repository-only cases until the permanent repository could accept 100 percent of the site's SNF. The staff notes one example of the effect of this cost in which post-shutdown costs continue for 11 years longer when the proposed PFSF is not available—from 2030 to 2040—and which results in nominal cost savings of \$88 million for the "with PFSF" case. When discounted (at 7 percent), however, cost savings in this example are only \$7.9 million. Discounted savings are significantly less than undiscounted savings because the savings occur from 30 to 40 years in the future. Nevertheless, as shown in Table 8.3, changing the annual post-shutdown costs by \pm \$2 million results in a \pm 72 percent change in the net benefits for the medium throughput scenario (2015 repository).

Table 8.3. Sensitivity of scenario net benefits to alternative assumptions at a 7 percent discount rate
(present value in millions of 1999 dollars)

Assumptions	PFS's baseline data with OMB discount rate	Lower post- shutdown costs	Higher post- shutdown costs	Lower dry storage costs	Higher dry storage costs	Lower PFS capital and operating costs	Higher PFS capital and operating costs
Annual cost of post shutdown pool storage	\$8,000,000	\$6,000,000	\$10,000,000	\$8,000,000	\$8,000,000	\$8,000,000	\$8,000,000
Dry storage costs ^a	PFS estimates	PFS estimates	PFS estimates	PFS - 10%	PFS + 10%	PFS estimates	PFS estimates
Cost of PFS facilities and operations ^a	PFS estimates	PFS estimates	PFS estimates	PFS estimates	PFS estimates	PFS - 10%	PFS + 10%
Scenario							
I: medium throughput (20,000 MTU capacity; throughput = 29,019 MTU; 2015 repository)	\$329	\$92	\$566	\$320	\$338	\$416	\$242
II: medium throughput (16,000 MTU capacity; throughput = 29,021 MTU; 2010 repository)	\$109	-\$86	\$305	\$104	\$117	\$197	\$21
III: maximum throughput (38,000 MTU capacity; throughput = 38,000 MTU; 2015 repository)	\$768	\$493	\$1,043	\$712	\$823	\$879	\$657
IV: maximum throughput (38,000 MTU capacity; throughput = 38,000 MTU; 2010 repository)	\$487	\$243	\$731	\$445	\$592	\$598	\$376

^aThe entry "PFS estimates" indicates PFS's baseline assumption; "PFS - 10%" indicates a value 10% less than PFS's baseline assumption; "PFS + 10%" indicates a value 10 percent greater than PFS's baseline assumption.

The staff notes that the estimates of post-shutdown costs for operating an SNF pool vary widely. A study prepared for the DOE by Pacific Northwest Laboratory (PNL 1991) found that SNF pool operation cost for a single-pool site with all reactors shut down would range from \$2.3 million to \$6.0 million (1989 dollars). When the expected value (\$3.7 million) from the DOE study is adjusted to year 1999 dollars, the annual cost would be \$4.7 million. A critique of this study indicated that these annual costs could range from \$8 million to as high as \$25 million (PFS/RAI2 1999d). This critique indicates that a substantial part of the difference between the PNL estimate and the utility estimates results because “PNL began with a dedicated spent fuel storage facility and attempted to adjust for the nuclear power plant environment, whereas the utilities began with an operating nuclear power plant and adjusted for the changes due to cessation of power production” (PFS/RAI2 1999d). Because this is a very significant post-shutdown cost, some utilities have considered transferring all SNF from the pool to an at-reactor ISFSI. Although this has not yet been done at any of the existing reactor sites that have been shut-down, the staff believes that it could be a cost-effective option for some reactor sites particularly if post shut-down pool storage costs are much more than the \$8 million assumed by PFS. If pool storage costs are less than \$8 million, for example, \$6 million as assumed in the sensitivity analysis, the economic benefit of the facility decrease significantly.

8.1.2.5 On-Site Costs for Additional Spent Fuel Storage

PFS has used assumptions for the cost of at-reactor storage that are presented in Table 8.1 and explained in Section 8.1.1.5. These cost assumptions (excluding SNF pool costs) are based on a DOE report (TRW 1993) and have been adjusted for inflation to 1999 dollars in Table 8.3. The staff has varied these assumptions by ± 10 percent to determine their effect on net benefits. Table 8.3 indicates that a ± 10 percent change in costs affects the range of the net economic benefits from ± 3 percent to ± 21.5 percent depending on the throughput of the proposed PFSF.

8.1.2.6 Costs of the Proposed PFSF

The cost of the proposed PFSF has been based on assumptions in PFS’s business plan. In Table 8.3 these costs have been varied by ± 10 percent. Various factors could change PFS’s cost of constructing and operating the proposed PFSF. Table 8.3 indicates that the net economic benefits are highly sensitive to a 10 percent change in these costs.

8.1.2.7 Quantity of Spent Fuel Accepted at the Proposed PFSF

The quantity of SNF accepted at the proposed PFSF is critical to the calculation of net economic benefits. This can be seen by comparing the scenarios for medium and maximum throughput for a repository opening in 2010. Increases in net benefits as the SNF stored at PFSF increases reflect economies of scale associated with the proposed PFSF. However, average benefits per unit of SNF throughput would be less for reactors that do not need additional on-site storage and for reactors that have later shut-down dates. Such reactors would, therefore, be associated with reduced post-shutdown storage benefits; and the positive effect of economies of scale on net benefits would be moderated and may be overridden as such reactors are added to the scenarios.

8.1.3 Conclusion

From an economic perspective, the net benefit of the proposed PFSF is directly proportional to the quantity of SNF shipped to the facility. The scenarios evaluated by the staff indicate the potential for

a net positive benefit. As the SNF throughput decreases, the economic benefit decreases. The net economic benefits of the proposed PFSF are sensitive to several factors that are inherently uncertain. An analysis of the sensitivity of the potential net economic benefits to critical cost assumptions indicates the possibility of considerable variation in outcome. Notwithstanding the sensitivity of the benefits to these factors, cases in which the proposed PFSF has a capacity of at least 16,000 MTU have a greater likelihood of positive net benefits.

8.2 Environmental Benefits and Costs

8.2.1 Environmental Benefits of the Proposed Action

Under the proposed action, the Skull Valley Band would benefit from a steady stream of lease payments for the use of their land, and from employment opportunities associated with construction and operation of the proposed PFSF. Additional financial resources for the Skull Valley Band as a whole, as well as for individual members, would offer expanded opportunities for social, educational and economic development. Tooele County and other parts of Utah would also benefit economically from the monies spent buying and manufacturing items for use at the proposed facility.

If the proposed PFSF is not licensed, it could lead to cessation of the power generating activities before operating license expiration at one or more nuclear power plants. This could possibly result in the increased use of fossil fuel fired power plants could emit greater quantities of air pollutants per unit of electricity produced than nuclear plants.

8.2.2 Environmental Costs of the Proposed Action

The environmental costs of the proposed action are directly related to the potential environmental impacts discussed extensively in Chapters 4, 5 and 6. Among the most significant environmental costs is the commitment of the tract of land in Skull Valley for the proposed new rail line. This land would be lost for other uses until such time as the rail line was decommissioned and removed.

Additional environmental costs would be associated with the increased use of Skull Valley Road by construction workers and operations workers at the proposed PFSF. Increased road use would add to existing traffic and would produce vehicle noise audible at roadside residences.

The existing scenic qualities of Skull Valley would be changed by the presence of an industrial facility (i.e., the proposed PFSF) and the new rail line. Impacts to these scenic qualities could not completely be mitigated until the facility and rail line were eventually decommissioned and removed.

The proposed action would expose members of the public along transportation routes and the residents of Skull Valley to a small, incremental amount of radiation. As discussed in Section 5.7, these doses are considered to be small.

8.3 Other Societal Benefits and Costs

Construction of the proposed rail line to the facility would enhance the transportation infrastructure in Skull Valley. The proposed improvements to the transportation infrastructure could make economic development of the central and southern parts of the valley more attractive. Similarly, enhancements to electric and telephone service induced by the proposed PFSF could enhance the attractiveness of the valley for other development or economic activities.

The existence of the proposed PFSF would provide an alternative to at-reactor storage and thus would help to ensure that a nuclear power plant would not have to cease operations before expiration of its operating license because of a lack of SNF storage capacity.

Before a nuclear plant site at which reactor operation permanently ceased could become available for other uses, the facility would need to be decommissioned (i.e., all radioactive materials would have to be removed). As long as SNF remains in storage at the reactor, decommissioning cannot be completed. The existence of the proposed PFSF would allow licensees of shutdown reactors to be decommissioned sooner, resulting in a cost savings to the owner and allowing earlier use of the reactor site for other purposes.